

WHAT IS CLAIMED IS:

- 1 1. A method comprising:
2 super-cooling a solute to produce a pre-conditioned solute, and using the
3 pre-conditioned solute as a heat exchange medium;
4 wherein the step of super-cooling alters a heat
5 absorption rate of the solute, such that the pre-conditioned solute has an
6 increased heat absorption rate as compared to the solute prior to conditioning.

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- 1 2. A system comprising:
2 a tank capable of holding a predetermined amount of liquid;
3 a circulator capable of circulating said liquid;
4 a refrigeration system capable of cooling said liquid; and
5 a pre-conditioned solute having an altered heat absorption rate.
- 1 3. The system as in Claim 2, wherein said pre-conditioned solute is a solute
2 having been conditioned by being super-cooled at an average rate of at least
3 about 6.5°C per minute.
- 1 4. The system as in Claim 2, wherein said pre-conditioned solute is a solute
2 having been conditioned by being super-cooled from room temperature to a
3 temperature of less than about -23°C.
- 1 5. The system as in Claim 2, wherein said pre-conditioned solute is a solute
2 having been conditioned by being super-cooled from room temperature to
3 between about -23°C and -26°C.
- 1 6. The system as in Claim 2, wherein said pre-conditioned solute is a solute
2 having been conditioned by being super-cooled at an average rate of between
3 about 6.5°C and 8.5°C per minute.
- 1 7. The system as in Claim 2, wherein said pre-conditioned solute is a solute
2 having been conditioned by being super-cooled, for at least a portion of time,
3 at an average rate of at least about 17°C per minute.
- 1 8. The system as in Claim 2, wherein the heat absorption rate of the pre-
2 conditioned solute is about 135 BTU at a temperature of between about -23°C

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3 and -26°C.

1 9. The system as in Claim 2, wherein at least a portion of the pre-conditioned
2 solute remains in a super-cooled state, such that the pre-conditioned solute
3 exhibits no spike in temperature upon subsequently being cooled from room
4 temperature to between about -23°C and -26°C.

1 10. The system as in Claim 2, wherein said pre-conditioned solute includes
2 propylene glycol.

1 11. The system as in Claim 10, wherein the pre-conditioned solute includes:
2 about 50 per cent water;
3 about 50 percent propylene glycol; and
4 about 1 percent surfactant.

1 12. The system as in Claim 2, wherein said pre-conditioned solute includes
2 glycerol.

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- 1 13. A heat exchange medium comprising a liquid having an altered heat
2 absorption rate.
- 1 14. The heat exchange medium as in Claim 13, wherein the heat absorption rate
2 of said liquid is altered by a process including super-cooling a liquid with an
3 unaltered heat absorption rate at an average rate of at least about 6.5°C per
4 minute.
- 1 15. The heat exchange medium as in Claim 13, wherein the heat absorption rate
2 of said liquid is altered by a process including super-cooling a liquid with an
3 unaltered heat absorption rate to a temperature of less than about -23°C.
- 1 16. The heat exchange medium as in Claim 13, wherein the heat absorption rate
2 of said liquid is altered by a process including super-cooling a liquid with an
3 unaltered heat absorption rate from room temperature to between about -23°C
4 and -26°C.
- 1 17. The heat exchange medium as in Claim 13, wherein the heat absorption rate
2 of said liquid is altered by a process including super-cooling a liquid with an
3 unaltered heat absorption rate at an average rate of between about 6.5°C and
4 8.5°C per minute.
- 1 18. The heat exchange medium as in Claim 13, wherein the heat absorption rate
2 of said liquid is altered by a process including super-cooling a liquid with an
3 unaltered heat absorption rate, for at least a portion of time, at an average rate
4 of at least about 17°C per minute.
- 1 19. The heat exchange medium as in Claim 13, wherein the altered heat

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2 absorption rate of the liquid is about 135 BTU at a temperature of between
3 about -23°C and -26°C.

1 20. The heat exchange medium as in Claim 13, wherein at least a portion of said
2 liquid remains in a super-cooled state, such that said liquid exhibits no spike in
3 temperature upon subsequently being cooled from room temperature to
4 between about -23°C and -26°C.

1 21. The heat exchange medium as in Claim 13, wherein said liquid includes
2 propylene glycol.

1 22. The heat exchange medium as in Claim 21, wherein said liquid includes:
2 about 50 per cent water;
3 about 50 percent propylene glycol; and
4 about 1 percent surfactant.

1 23. The heat exchange medium as in Claim 13, wherein said liquid includes
2 glycerol.